AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or less characters; and 2. added matter is shown by underlining.

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1. (Presently Amended) A method for obtaining a plurality of quantities of compositions with an apparatus comprising a plurality of collectors and a nozzle comprising a reactant inlet, the method comprising:

reacting a first quantity of fluid reactants within a fluid stream at least a portion of which is from the reactant inlet to form a first quantity of product composition;

collecting the first quantity of product composition from the fluid stream using a first collector;

moving the nozzle relative to the first collector and second collector following completion of the collection of the first quantity of product composition;

following completion of the collection of the first quantity of product composition, reacting a second quantity of fluid reactants within the fluid stream at least a portion of which is from the reactant inlet to form a second quantity of product composition, the second quantity of product composition being materially different from the first quantity of product composition; and

collecting the second quantity of product composition from the fluid stream using a second collector ~~operably distinct~~ along a flow path independent from the first collector. First collector was never established as being on a first flow path. see p8 10 maybe newmatter

2. (Original) The method of claim 1 wherein the composition of the second quantity of fluid reactants is different from the composition of the first quantity of fluid reactants.

3. (Original) The method of claim 1 wherein a reaction condition during the reaction of the second quantity of fluid reactants is different from the reaction condition during the reaction of the first quantity of fluid reactants.

4. (Original) The method of claim 3 wherein the reaction condition is selected from the group consisting of pressure, reactant flux, reactant temperature, amount of inert diluent, amount of radiation absorbing gas, and energy input.

5. (Previously Presented) The method of claim 1 wherein the nozzle comprises a plurality of reactant inlets.

6. (Previously Presented) The method of claim 1 wherein the nozzle remains fixed and the collectors are moved relative to the nozzle.

7. (Previously Presented) The method of claim 1 wherein the collectors remain fixed and the nozzle is moved relative to the collectors.

8. (Original) The method of claim 1 wherein the apparatus has a radiation path defined by a radiation source and directing optical elements and wherein the reacting of the fluid reactants involves interacting radiation from the radiation source with the reactants.

9. (Original) The method of claim 8 wherein the radiation source is an infrared laser.

10. (Original) The method of claim 1 wherein the reactions are performed in a reaction chamber sealed from the ambient environment.

11. (Original) The method of claim 10 wherein the compositions comprise particles and the apparatus further comprises a pump and valves, and wherein the valves are opened and closed such that the first collector is exposed to the forces of the pump while the first quantity of particles are being collected and the second collector is exposed to the forces of the pump while the second quantity of particles are being collected.

12. (Original) The method of claim 1 further comprising evaluating the properties of the first quantity of product composition and the second quantity of product composition.

13. (Original) The method of claim 1 wherein one of the quantity of reactants is introduced into a reaction zone through a plurality of inlets oriented such that the reactants combine after they pass through the inlets, the reaction of the one quantity of reactants taking place within the reaction zone.

14. (Original) The method of claim 1 further comprising delivering the first quantity of reactants through a first nozzle and delivering the second quantity of reactants through a second nozzle.

15-37. (Canceled)

38. (Presently Amended) A method for producing a mixture of compositions, the method comprising:

reacting a first quantity of fluid reactants to form a first quantity of product composition;

collecting the first quantity of product composition using a collector;

following completion of the collection of the first quantity of product composition, reacting a second quantity of fluid reactants to form a second quantity of product composition, the second quantity of product composition being materially different from the first quantity of product composition; and

collecting the second quantity of product composition using the collector to obtain a mixture of the first quantity of product composition and the second quantity of product composition,

wherein the reactions are performed in a reaction chamber sealed from the ambient environment.

39. (Previously Presented) The method of claim 1 wherein the first quantity of product composition and the second quantity of product composition comprise solid particles.

40. (Previously Presented) The method of claim 1 wherein the first quantity of product composition and the second quantity of product composition comprises a metal.

41. (Previously Presented) The method of claim 1 wherein the first quantity of product composition and the second quantity of product composition comprises chemical powders selected from the group consisting of metal/metalloid oxides, metal/metalloid carbides, metal/metalloid nitrides, and metal/metalloid sulfides.

42. (Previously Presented) The method of claim 1 wherein the first quantity of fluid reactants and the second quantity of fluid reactants comprise vapor reactants.

43. (Previously Presented) The method of claim 1 wherein the first quantity of fluid reactants and the second quantity of fluid reactants comprise aerosol reactants.

44. (Previously Presented) The method of claim 1 wherein first quantity of fluid reactants and the second quantity of fluid reactants comprise a metal/metalloid compound.

45. (Previously Presented) The method of claim 12 wherein the step of evaluating the properties comprises evaluating the crystal structure by x-ray diffraction.

46. (Previously Presented) The method of claim 12 wherein the step of evaluating the properties comprises evaluating particle size using dynamic light scattering.

47. (Previously Presented) The method of claim 12 wherein the step of evaluating the properties comprises evaluation of the optical properties.

48. (Previously Presented) The method of claim 47 wherein the optical properties are selected from the group consisting of emission, absorption, Raman scattering, fluorescence and combinations thereof.

49. (Previously Presented) The method of claim 12 wherein the step of evaluating the properties comprises measurement of the electroactive properties.

50. (Previously Presented) The method of claim 12 wherein the step of evaluating the properties comprises measurement of the electrical properties or magnetic properties.

51. (Previously Presented) The method of claim 12 wherein the step of evaluating the properties is performed without removing the products from the collectors.

52. (Previously Presented) The method of claim 12 wherein the step of evaluating the properties is performed after removing the products from the collectors.

53. (Previously Presented) The method of claim 38 wherein the composition of the second quantity of fluid reactants is different from the composition of the first quantity of fluid reactants.

54. (Previously Presented) The method of claim 38 wherein the reacting the first quantity of fluid reactants is within a fluid stream and wherein the reacting the second quantity of fluid reactant is within a fluid stream.

55. (Previously Presented) The method of claim 38 wherein the apparatus has a radiation path defined by a radiation source and directing optical elements and wherein the reacting of the fluid reactant involves interacting radiation from the radiation source with the reactants.

56. (Canceled).

57. (Previously Presented) The method of claim 38 further comprising evaluating the properties of the mixture.

58. (Previously Presented) A method for obtaining a plurality of quantities of compositions with an apparatus comprising a plurality of collectors and a reactant delivery system comprising a first quantity of fluid reactants and a second quantity of fluid reactants being different from the first quantity of fluid reactants, the method comprising:

reacting the first quantity of fluid reactants within a fluid stream to form a first quantity of product composition;

collecting the first quantity of product composition from the fluid stream using a first collector;

following completion of the collection of the first quantity of product composition, reacting the second quantity of fluid reactants within the fluid stream to form a second quantity of product composition, the second quantity of product composition being materially different from the first quantity of product composition, wherein the second quantity of fluid reactant is different from the first quantity of fluid reactants; and

collecting the second quantity of product composition from the fluid stream using a second collector.

59. (Previously Presented) The method of claim 58 wherein the first quantity of fluid reactants comprises a different proportion of compounds relative to the second quantity of fluid reactants.

60. (Previously Presented) The method of claim 58 wherein the first quantity of fluid reactants comprises different compounds than the second quantity of fluid reactants.

61. (Previously Presented) The method of claim 58 wherein the apparatus comprises a nozzle comprising a reactant inlet that moves relative to the plurality of collectors and wherein the nozzle is moved relative to the first collector and second collector following completion of the collection of the first quantity of product composition, at least a portion of the first quantity of fluid reactants being from the reactant inlet and at least a portion of the second quantity of second fluid reactants being from the reactant inlet.

62. (Previously Presented) The method of claim 58 wherein the apparatus has a radiation path defined by a radiation source and directing optical elements and wherein the reacting of the fluid reactants involves interacting radiation from the radiation source with the reactants.

63. (Previously Presented) The method of claim 58 further comprising evaluating the properties of the first quantity of product composition and the second quantity of product composition.

64. (Previously Presented) A method for obtaining a plurality of quantities of compositions with an apparatus comprising a plurality of collectors and a reaction chamber isolated from the ambient environment, the method comprising:

reacting in the reaction chamber a first quantity of fluid reactants within a fluid stream to form a first quantity of product composition;

collecting the first quantity of product composition from the fluid stream using a first collector;

following completion of the collection of the first quantity of product composition, reacting in the reaction chamber a second quantity of fluid reactants within the fluid stream to form a second quantity of product composition, the second quantity of product composition being materially different from the first quantity of product composition, wherein at least one reaction condition during the formation of the second quantity of product compositions is different from the reaction condition during the formation of the first quantity of product compositions and wherein the reaction chamber remains isolated from the ambient environment continuously from the reacting of the first quantity of reactants and through the reacting of the second quantity of reactants; and

collecting the second quantity of product composition from the fluid stream using a second collector.

65. (Previously Presented) The method of claim 64 wherein the at least one reaction condition is selected from the group consisting of pressure, reactant flux, reactant temperature, amount of inert diluent, amount of radiation absorbing gas, and energy input.

66. (Previously Presented) The method of claim 64 wherein the apparatus comprises a nozzle comprising a reactant inlet that moves relative to the plurality of collectors and wherein the nozzle is moved relative to the first collector and second collector following completion of the collection of the first quantity of product composition, at least a portion of the first quantity of fluid reactants being from the reactant inlet and at least a portion of the second quantity of second fluid reactants being from the reactant inlet.

67. (Previously Presented) The method of claim 64 wherein the apparatus has a radiation path defined by a radiation source and directing optical elements and wherein the reacting of the fluid reactants involves interacting radiation from the radiation source with the reactants.

68. (Previously Presented) The method of claim 64 further comprising evaluating the properties of the first quantity of product composition and the second quantity of product